

Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) An index head assembly for a semiconductor device test handler, comprising:
 - a carrier base configured to be fixed to a transfer device of the handler;
 - an elevating carrier movably coupled to the carrier base and configured to be raised and lowered relative to the carrier base;
 - an elevating device configured to raise and to lower the elevating carrier relative to the carrier base;
 - a head holder movably coupled to a lower portion of the elevating carrier via at least one guide member and configured to move in a vertical direction relative to the elevating carrier; and
 - a plurality of heads fixed to the head holder, wherein each of the plurality of heads comprises:
 - a holding part configured to hold a semiconductor device with a vacuum force;
 - a heating part positioned on an upper portion of the holding part and configured to generate and to transfer heat directly to the semiconductor device when the semiconductor device is mounted in a test socket of the handler; and

a compliance part positioned on an upper portion of the heating part and configured to properly align the semiconductor device held by the holding part and the test socket.

2. (Previously Presented) The index head assembly as claimed in claim 1, further comprising a force transducer positioned between the elevating carrier and the head holder and configured to measure a load applied by the elevating carrier based on a displacement of the elevating carrier with respect to the head holder when the semiconductor device mounted in the test socket is pressed down.

3. (Previously Presented) The index head assembly as claimed in claim 2, wherein the force transducer comprises a load cell.

4. (Previously Presented) The index head assembly as claimed in claim 1, wherein the at least one guide member comprises guide pins positioned on opposite end portions of an upper portion of the head holder and configured to be inserted into corresponding holes in the elevating carrier so as to allow the head holder be movable in a vertical direction relative to the elevating carrier.

5. (Previously Presented) The index head assembly as claimed in claim 1, wherein the at least one guide member comprises a pair of linear motion (LM) guides fitted to the elevating carrier in so as to be oriented in a vertical direction, and a corresponding pair of LM blocks fixed to a rear surface of the head holder and coupled to the pair of LM guides.

6. (Previously Presented) The index head assembly as claimed in claim 1, wherein the compliance part comprises:

an upper block fixed to the head holder and comprising a plurality of holes formed in a lower portion thereof;

a plurality of ball plungers each comprising an elastic body configured to be inserted into and retained in a corresponding hole of the plurality of holes formed in the upper block, a retainer coupled to a lower end of the elastic body, and a ball configured to be retained under the retainer such that a portion of the ball is exposed at a bottom surface of the upper block;

a lower block configured to be coupled to a bottom portion of the upper block with a preset allowance therebetween; and

a plurality of recesses formed in an upper surface of the lower block at positions corresponding to the holes formed in the upper block, wherein the plurality of recesses are configured to receive and to hold the balls of the plurality of ball plungers.

7. (Previously Presented) The index head assembly as claimed in claim 1, wherein the heating part comprises:

a heating block formed of a conductive material and comprising a heater configured to generate and to transfer heat to the holding part ;

a through hole formed in a central portion of the heating block; and

a coupling nozzle coupled to the compliance part with a space formed therebetween, wherein the coupling nozzle is configured to be inserted into and fixed in the through hole so as to form a vacuum therein.

8. (Previously Presented) The index head assembly as claimed in claim 7, wherein a lower end of the coupling nozzle is configured to be flexible.

9. (Previously Presented) The index head assembly as claimed in claim 8, wherein a lower end of the coupling nozzle is formed of an elastic material.

10. (Previously Presented) The index head assembly as claimed in claim 1, wherein the holding part comprises:

a pocket block formed of a conductive material and configured to closely contact
a lower surface of the heating part;

a through hole formed in a center portion of the pocket block;

a floating nozzle configured to be inserted into and coupled to the through hole,
and to be connected to the heating part so as to absorb and to hold the semiconductor device
with a vacuum force; and

a plurality of blades formed of a non-conductive material and positioned so as to
be oriented in a vertical direction relative to a bottom surface of the pocket block , wherein the
plurality of blades are configured to press on leads of the semiconductor device so as to bring
the leads into contact with a terminal part of the test socket.

11. (Previously Presented) The index head assembly as claimed in claim 7, wherein
the holding part comprises:

a pocket block formed of a conductive material and configured to closely contact
a bottom surface of the heating block ;

a through hole formed in a center portion of the pocket block;

a floating nozzle configured to be inserted into and coupled to the through hole,
and to be connected to the coupling nozzle so as to absorb and to hold the semiconductor
device with a vacuum force; and

a plurality of blades formed of a non-conductive material and positioned vertical to a bottom surface of the pocket block, wherein the plurality of blades are configured to press on leads of the semiconductor device so as to bring the leads into contact with a terminal part of the test socket.

12. (Previously Presented) The index head assembly as claimed in claim 10, wherein the floating nozzle is configured to be movably coupled to the through hole so as to allow vertical movement of the floating nozzle through a preset distance.

13. (Previously Presented) The index head assembly as claimed in claim 12, wherein the through hole comprises steps formed at an upper part and a lower part of the through hole each with diameters greater than an intermediate part of the through hole, and wherein the floating nozzle comprises rims extending outward from an upper part and a lower part of the floating nozzle and configured to engage with the steps so as to limit vertical movement of the floating nozzle in the through hole.

14. (Previously Presented) The index head assembly as claimed in claim 1, further comprising a plurality of positioning holes formed in the holding part of the head and configured to receive a plurality of positioning pins positioned proximate the test socket.

15. (Previously Presented) The index head assembly as claimed in claim 1, wherein the elevating device comprises:

- a linear motion (LM) guide fixed to the carrier base;
- a LM block fixed to the elevating carrier and coupled to the LM guide;
- a ball screw fixed to the carrier base and coupled to the elevating carrier; and
- a motor configured to drive the ball screw.

16. (Previously Presented) The index head assembly as claimed in claim 1, wherein the compliance part is configured to provide a plurality of degrees of freedom to the plurality of heads so as to properly align the semiconductor device in the test socket.

17. (Previously Presented) The index head assembly as claimed in claim 7, wherein the heater comprises an electric heater.

18. (Previously Presented) The index head assembly as claimed in claim 9, wherein a lower end of the coupling nozzle is formed of silicone.

19. (Previously Presented) The index head assembly as claimed in claim 10, wherein the heating part comprises a heating block, and wherein the pocket block is configured to closely contact a bottom surface of the heating block.

20. (Previously Presented) The index head assembly as claimed in claim 10, wherein the heating part comprises a coupling nozzle, and wherein the floating nozzle is configured to be coupled to the coupling nozzle.

21. (Previously Presented) The index head assembly as claimed in claim 14, wherein the plurality of positioning holes are configured to mate with the plurality of positioning pins to accurately guide a head of the plurality of heads onto a corresponding test socket of the handler.

Claims 22. - 38. (Canceled)